

said composition comprises palladium, silver, an alkali metal or an alkali metal-containing compound, a selectivity enhancer selected from the group consisting of lead, bismuth, and gallium, and alumina [wherein said selectivity enhancer is selected from the group consisting of bismuth, lead, gallium]; and

said palladium, silver, alkali metal or alkali metal-containing compound, and said selectivity enhancer are each present in a sufficient amount to effect selective hydrogenation of said highly unsaturated hydrocarbon to a less unsaturated hydrocarbon.

REMARKS

Claims 37-40, 55-57 and 59-61 have been canceled without prejudice. Claims 36, 41, 51, 52 and 58 have been amended generally by incorporating language from dependent claims into the independent claims. Claims 36, 41-54, 58 and 62-67 remain in the application for examination.

Applicants' amended claims set out processes for the selective hydrogenation of unsaturated hydrocarbons in a hydrocarbon-containing stream employing a catalyst composition comprising palladium, silver, an alkali metal or an alkali metal-containing compound, a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof.

Claims 38, 39, 40, 41, 44, 46, 48 and 51 have been rejected under 35 U.S.C. 112, second paragraph, as indefinite because claims 38 was dependent on a canceled claim. Claim 38 has been canceled without prejudice and the claims dependent thereon have had their dependency corrected. Removal of this rejection is respectfully requested.

Claims 36, 47, 49, 50, 52, 53, 58 and 65 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sarrazin *et al.* (5,364,998). This rejection of the amended claims is respectfully traversed.

Language has been amended into the independent claims 36, 52 and 58 from their dependent claims 37-38, 55-56 and 59-60, respectively, to create thereby claims that contain language that was not found to be rejectable over Sarrazin *et al.* (5,364,998). Applicants,

therefore, respectfully request the removal of the rejection of claims 36, 47, 49, 50, 52, 53, 58 and 65 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sarrazin *et al.* (5,364,998).

Claims 36, 43, 49, 50, 52, 53, 58 and 66 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trinh Dinh *et al.* (4,504,593). This rejection of the amended claims is respectfully traversed.

Language has been amended into the independent claims 36, 52 and 58 from their dependent claims 37-38, 55-56 and 59-60, respectively, to create thereby claims that contain language that was not found to be rejectable over Trinh Dinh *et al.* (4,504,593). Applicants, therefore, respectfully request the removal of the rejection of claims 36, 47, 49, 50, 52, 53, 58 and 65 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trinh Dinh *et al.* (4,504,593).

Claims 36-46, 49-53, 55-64 and 66 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404). This rejection of the amended claims is respectfully traversed.

Cheung *et al.* 5,475,173) is cited as disclosing a hydrogenation process in which a catalyst containing palladium, silver and alkali metal on an inorganic base is employed. This disclosure, as cited, does not disclose Applicants' selectivity enhancers. Lindlar *et al.* (3,715,404) is cited for the disclosure of a general teaching that the art recognizes "that lead, bismuth, cadmium, tin, thorium and or mercury enhance the activity of palladium catalysts which are utilized in selective hydrogenation processes." Applicants urge that Lindlar *et al.* (3,715,404) does not disclose (A) what can be expected in the enhancement of catalytic activity of palladium by the addition of these metals in selective hydrogenation processes also in the presence of silver and alkali metal or (B) what can be expected in the enhancing ability of silver and/or alkali metal when used with palladium if another material such as one or more of the metals of Lindlar *et al.* is added to the mix. Those skilled in the art know that the results of the addition multiple materials is not truly predictable from results of individual combinations of materials. Similarly, those skilled in the art know that the old saw, "obvious to try, is not obvious", applies. In the case of the number of multiple components set out in Applicants' claims, it is doubtful that the combination of the teachings of this art would even make the addition of the metals of Lindlar *et al.* "obvious to try". Applicants, therefore, respectfully request the removal of the rejection of claims 36-46, 49-53, 55-

64 and 66 under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404).

Claims 54 and 67 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Collins (4,126,645). This rejection of the amended claims is respectfully traversed.

Applicants have pointed out above that claims of this application should not be rejected under 35 U.S.C. 103(a) over the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404). The Collins (4,126,645) disclosure adds nothing to supplement the basic deficiency of the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as set out above. In fact, the Collins disclosure simply adds another disclosure that it is known that palladium can be deposited near the surface of a skin on an alumina support without regard to what the presence of other added materials might contribute or detract from the overall performance of a catalyst. Applicants, therefore, respectfully request the removal of the rejection of claims 54 and 67 under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Collins (4,126,645).

Claim 48 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to claims 36-46, 49-53, 55-64 and 66 above further in view of Sarrazin *et al.* (5,364,998). This rejection of the amended claims is respectfully traversed.

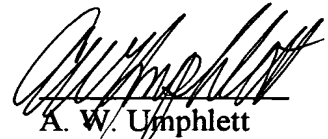
Applicants have pointed out above that claims of this application should not be rejected under 35 U.S.C. 103(a) over the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404). The Sarrazin *et al.* (5,364,998) disclosure adds nothing to supplement the basic deficiency of the combination of the disclosures of Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as set out above. In fact, the Collins disclosure simply adds another disclosure that it is known that palladium can be used in combination with gallium or indium in a hydrogentaion catalyst without regard to what the presence of other added materials might contribute or detract from the overall performance of the catalyst. Applicants, therefore, respectfully request the removal of the rejection of claim 48 under 35 U.S.C. 103(a) as being unpatentable over Cheung *et al.* 5,475,173) in view of Lindlar *et al.* (3,715,404) as applied to

claims 36-46, 49-53, 55-64 and 66 above further in view of Sarrazin *et al.* (5,364,998).

In view of the amendments and remarks above it is respectfully requested that the rejection of claims be reconsidered and all the amended claims be found allowable.

Respectfully submitted,

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